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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,087	02/06/2004	Michael J. French	BMCA9159.359	2086

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EXAMINER

WRIGHT, ANDREW D

ART UNIT	PAPER NUMBER
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3617

DATE MAILED: 02/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,087

Applicant(s)

FRENCH ET AL.

Examiner

Andrew Wright

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-30 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 19-30 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 19-30 in the reply filed on 12/20/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). It is noted that applicant cancelled non-elected claims 1-18 in the reply filed 12/20/04.
2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 26-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 26 recites that it depends from claim 26. This is unclear and renders the claim indefinite. Claims 27 and 28 depend from claim 26 and are rejected for the same reason. For examination, it will be assumed that claim 26 depends from claim 25.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 19 and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDowell et al. (US 6,026,792) in view of Knight et al. (US 6,581,579) and Tanaka et al. (US 6,431,838). McDowell shows an outboard motor with an internal combustion engine, an engine component in the form of a fuel pump (60), and an engine control unit (66). The electrical power source for the engine and engine components is an alternator (column 7, lines 40-41) that provides voltage in the range of approximately 8 volts to approximately 30 volts (column 9, lines 37-40). McDowell does not disclose that the fuel pump is rated to operate at a rated maximum voltage, and that the engine control unit controls the engine component to operate at a voltage that exceeds the rated maximum voltage. Engine components such as fuel pumps are commonly rated to operate at a maximum rated voltage. Applicant admits this in Paragraph 0005 of the instant application, where it is stated that a "fuel pump ... [is] customarily designed to operate with a nominal 12 or 24 volt input." Knight also discloses the use of a 24 volt fuel pump. The skilled artisan making and using the McDowell invention would be motivated to use a fuel pump that is operationally rated within the voltage range of the alternator, and 24 volt fuel pumps are well known in the art. Therefore it would have

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been obvious to one having ordinary skill in the art at the time the invention was made to use a fuel pump (60) that is rated to operate at a rated maximum voltage of 24 volts.

8. Still regarding claim 19, McDowell does not disclose that the engine control unit controls the engine component to operate at a voltage that exceeds the rated maximum voltage. McDowell does disclose another engine component, the ignition system, that is controlled to operate within the same voltage range of the alternator. McDowell discloses that the engine control unit (ECU) uses a pulse width modulator (PWM) to increase the pulse width of voltage to the ignition system when the alternator voltage is low, and to decrease the pulse width of the voltage to the ignition system when the alternator voltage is high. McDowell is silent as to PWM used with the fuel pump. Tanaka shows a fuel pump for a small sized vehicle. The Tanaka pump is controlled by an ECU using PWM to prevent the injection amount from being varied due to changes in the supply voltage of the pump. When the power supply voltage of the fuel pump is more than the pump rated maximum voltage, the pulse width of the PWM is decreased as compared to when the power supply voltage is equal to the rated maximum voltage. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify McDowell by using PWM with the fuel pump to allow the pump to effectively operate at voltages above the rated maximum voltage. The motivation would be to allow effective operation of the fuel pump at the higher end of the alternator output range (i.e. 25-30 volts).

9. Regarding claim 24, the ECU can control the fuel pump at variable voltages.

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10. Claim 25, the Tanaka switching means (111) is a fuel pump drive circuit that controls the fuel pump based upon input received from the ECU.

11. Claim 26, the ECU controls the fuel pump drive circuit using pulse width modulation.

12. Claim 27, the recitation “configured to pulse width modulate the fuel pump drive circuit ... at approximately 3 amperes” is an intended use recitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Based upon the disclosure of McDowell and Tanaka, the modified invention is capable of performing the intended use.

13. Claim 28, the recitation “configured to pulse width modulate the fuel pump drive circuit at approximately 10 kHz” is an intended use recitation. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937,

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939, 136 USPQ 458, 459 (CCPA 1963). Based upon the disclosure of McDowell and Tanaka, the modified invention is capable of performing the intended use.

14. Claim 29, the McDowell engine is a two-cycle engine.

15. Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDowell in view of Knight and Tanaka as applied to claim 19 above, and further in view of Hall et al. (US 6,557,509). McDowell in view of Knight and Tanaka discloses all of the elements of claim 19. Regarding claim 20, although McDowell does not disclose a DC energy source, one is necessarily present. Regardless, it is well known and common to provide connect a voltage regulator to the alternator to convert the alternator AC to DC so that components can be driven on DC. Hall shows an outboard motor with alternator (84) and voltage regulator (90). The regulator converts the AC electrical power to DC electrical power (column 6, lines 9-20). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify McDowell by using a voltage regulator. The motivation would be to convert the AC to DC, as is well known in the art, for the purpose of driving engine components such as ignition systems and fuel pumps.

16. Claim 21, the voltage disclosed by McDowell is from 8 to 30 volts, which falls within the recited range.

17. Claim 22, the DC energy source is a voltage regulator as disclosed by Hall. McDowell discloses that the voltage can be up to 30 volts, which exceeds 12 volts.

18. Claim 23, McDowell discloses a voltage of 30 volts.

19. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDowell in view of Knight and Tanaka as applied to claim 19 above, and further in view of Kishibata et al. (US 6,807,949). McDowell in view of Knight and Tanaka discloses all of the elements of claim 19. Regarding claim 30, McDowell does not disclose that the engine is a rope-start engine. Kishibata shows an internal combustion engine that may be used in an outboard motor (column 1, line 12), the engine using pulse width modulation as part of a control system of the fuel pump, the engine further comprising a rope starter. Rope-start engines are well known and common in outboard motors. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify McDowell by providing a rope starter. McDowell is silent as to how the engine is started, and the skilled artisan wishing to make and use the McDowell engine would look to the prior art for a starting system.

Conclusion

20. Any inquiry concerning this communication should be directed to examiner Andrew D. Wright at telephone number (703) 308-6841. The examiner can normally be reached Monday-Friday from 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S. Joe Morano, can be reached at (703) 308-0230. The fax number for official communications is 703-872-9306. The fax number directly to the examiner for unofficial communications is 703-746-3548.

The examiner and his supervisor are relocating to the new Office campus in Alexandria, VA, on or around April 5, 2005. Telephone calls to the examiner and/or examiner's supervisor after that date should be directed as follows. The examiner's new telephone will be (571) 272-6690. The examiner's fax number for unofficial communications will be (571) 273-6690. The supervisor's new telephone number will be (571) 272-6684.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrew D. Wright
Patent Examiner
Art Unit 3617

Am 1-31-05
ANDREW D. WRIGHT
PRIMARY EXAMINER